

Status of All Claims in the Application:

1-68. (Canceled)

69. (New) A disk drive comprising:

a storage disk having a plurality of tracks;

a data transducer;

an actuator assembly that supports the data transducer over one of the tracks, the actuator assembly having a rotatable actuator hub and a longitudinal axis, the actuator hub being subjected to a resultant force caused at least partially by a lack of complete rigidity of portions of the disk drive, the resultant force urging the data transducer in an off-track direction; and

a positioner that moves the actuator assembly relative to the storage disk, the positioner including (i) a magnet assembly that generates a magnetic field, and (ii) a conductor assembly that cooperates with the magnet assembly to rotate the actuator hub and to generate a net force in a direction that is substantially opposite the resultant force.

70. (New) The disk drive of claim 69 wherein the conductor assembly includes a first coil that generates a first force that is directed at an angle having an absolute value that is greater than zero degrees and less than approximately 45 degrees relative to the longitudinal axis of the actuator assembly.

71. (New) The disk drive of claim 70 wherein the conductor assembly includes a spaced apart second coil that generates a second force that is directed at an angle having an absolute value that is greater than zero degrees and less than approximately 45 degrees relative to the longitudinal axis of the actuator assembly.

72. (New) The disk drive of claim 71 wherein the sum of the first force and the second force equals the net force of the conductor assembly.

73. (New) The disk drive of claim 72 wherein the net force is substantially equal to and substantially opposite the resultant force.

74. (New) The disk drive of claim 71 wherein the first coil and the second coil are substantially symmetrical relative to the longitudinal axis of the actuator assembly.

75. (New) The disk drive of claim 71 wherein the first force is directed at an angle having an absolute value that is greater than one degree and less than approximately 30 degrees relative to the longitudinal axis of the actuator assembly, and the second force is directed at an angle having an absolute value that is greater than one degree and less than approximately 30 degrees relative to the longitudinal axis of the actuator assembly.

76. (New) The disk drive of claim 71 further comprising a control system that independently directs electrical current to each of the coils.

77. (New) The disk drive of claim 71 wherein the first coil and the second coil are substantially coplanar.

78. (New) The disk drive of claim 69 wherein the net force has a magnitude that is substantially equal to and directionally opposite the resultant force.

79. (New) A disk drive comprising:

- a storage disk having a plurality of tracks;

- a data transducer;

- an actuator assembly that supports the data transducer over one of the tracks, the actuator assembly having a rotatable actuator hub and a longitudinal axis, the actuator hub being subjected to a resultant force caused at least partially by a lack of complete rigidity of portions of the disk drive, the resultant force being in a direction that is substantially perpendicular to the

longitudinal axis; and

a positioner that moves the actuator assembly relative to the storage disk, the positioner including (i) a magnet assembly that generates a magnetic field, and (ii) a conductor assembly that cooperates with the magnet assembly to generate a net force in a direction that is substantially opposite the resultant force to at least partially cancel the resultant force.

80. (New) The disk drive of claim 79 wherein the conductor assembly includes a first coil that generates a first force that is directed at an angle having an absolute value that is greater than zero degrees and less than approximately 45 degrees relative to the longitudinal axis of the actuator assembly.

81. (New) The disk drive of claim 80 wherein the conductor assembly includes a spaced apart second coil that generates a second force that is directed at an angle having an absolute value that is greater than zero degrees and less than approximately 45 degrees relative to the longitudinal axis of the actuator assembly.

82. (New) The disk drive of claim 81 wherein the sum of the first force and the second force equals the net force of the conductor assembly.

83. (New) The disk drive of claim 82 wherein the net force is substantially equal to and substantially opposite the resultant force.

84. (New) The disk drive of claim 81 wherein the first coil and the second coil are substantially symmetrical relative to the longitudinal axis of the actuator assembly.

85. (New) The disk drive of claim 81 wherein the first force is directed at an angle having an absolute value that is greater than one degree and less than approximately 30 degrees relative to the longitudinal axis of the actuator assembly, and the second force is directed at an angle having an absolute value that is greater

than one degree and less than approximately 30 degrees relative to the longitudinal axis of the actuator assembly.

86. (New) The disk drive of claim 81 further comprising a control system that independently directs electrical current to each of the coils.

87. (New) The disk drive of claim 81 wherein the first coil and the second coil are substantially coplanar.

88. (New) The disk drive of claim 79 wherein the net force has a magnitude that is substantially equal to and directionally opposite the resultant force.

89. (New) The disk drive of claim 79 wherein the magnet assembly cooperates with the conductor assembly to rotate the actuator hub to position the data transducer relative to the storage disk.

90. (New) A method for positioning a data transducer in a disk drive, the method comprising the steps of:

supporting the data transducer with an actuator assembly having a rotatable actuator hub and a longitudinal axis, the actuator hub being subjected to a resultant force caused at least partially by a lack of complete rigidity of portions of the disk drive, the resultant force urging the data transducer in an off-track direction;

positioning the actuator assembly by rotating the actuator hub with a positioner that includes (i) a magnet assembly that generates a magnetic field, and (ii) a conductor assembly that cooperates with the magnet assembly; and

generating a net force with the positioner, the net force being in a direction that is substantially opposite the resultant force.

91. (New) The method of claim 90 wherein the step of generating a net force includes generating a first force with a first coil, the first force being directed at

an angle having an absolute value that is greater than zero degrees and less than approximately 45 degrees relative to the longitudinal axis of the actuator assembly.

92. (New) The method of claim 91 wherein the step of generating a net force includes generating a second force with a spaced apart second coil, the second force being directed at an angle having an absolute value that is greater than zero degrees and less than approximately 45 degrees relative to the longitudinal axis of the actuator assembly.

93. (New) The method of claim 92 wherein the sum of the first force and the second force equals the net force of the conductor assembly.

94. (New) The method of claim 92 further comprising the step of independently directing electrical current to each of the coils with a control system.

95. (New) The method of claim 92 wherein the step of generating the net force includes positioning the first coil and the second coil substantially symmetrically on either side of the longitudinal axis of the actuator assembly.

96. (New) The method of claim 90 wherein the net force is substantially equal to and directionally opposite the resultant force.

97. (New) A method for positioning a data transducer in a disk drive, the method comprising the steps of:

supporting the data transducer with an actuator assembly having a rotatable actuator hub and a longitudinal axis, the actuator hub being subjected to a resultant force caused at least partially by a lack of complete rigidity of portions of the disk drive, the resultant force being in a direction that is substantially perpendicular to the longitudinal axis;

moving the actuator assembly by rotating the actuator hub with a positioner having (i) a magnet assembly that generates a magnetic field, and

(ii) a conductor assembly that cooperates with the magnet assembly; and
partially canceling the resultant force by generating a net force with the positioner, the net force being in a direction that is substantially opposite the resultant force.

98. (New) The method of claim 97 wherein the step of generating a net force includes generating a first force with a first coil, the first force being directed at an angle having an absolute value that is greater than zero degrees and less than approximately 45 degrees relative to the longitudinal axis of the actuator assembly.

99. (New) The method of claim 98 wherein the step of generating a net force includes generating a second force with a spaced apart second coil, the second force being directed at an angle having an absolute value that is greater than zero degrees and less than approximately 45 degrees relative to the longitudinal axis of the actuator assembly.

100. (New) The method of claim 99 wherein the sum of the first force and the second force equals the net force of the conductor assembly.

101. (New) The method of claim 99 further comprising the step of independently directing electrical current to each of the coils with a control system.

102. (New) The method of claim 99 wherein the step of generating the net force includes positioning the first coil and the second coil substantially symmetrically on either side of the longitudinal axis of the actuator assembly.

103. (New) The method of claim 97 wherein the net force is substantially equal to and directionally opposite the resultant force.

104. (New) A disk drive comprising:
a storage disk having a plurality of tracks;

a data transducer;

an actuator assembly that supports the data transducer over one of the tracks, the actuator assembly having a rotatable actuator hub and a longitudinal axis, the actuator hub being subjected to a resultant force caused at least partially by a lack of complete rigidity of portions of the disk drive, the resultant force urging the data transducer in an off-track direction; and

a positioner that moves the actuator assembly relative to the storage disk, the positioner including (i) a magnet assembly that generates a magnetic field, and (ii) a conductor assembly that cooperates with the magnet assembly to rotate the actuator hub, the conductor assembly including a first coil and a spaced apart second coil, the first coil generating a first force that is directed at an angle having an absolute value that is greater than zero degrees and less than approximately 45 degrees relative to the longitudinal axis, the conductor assembly generating a net force that at least partially opposes the resultant force.

105. (New) The disk drive of claim 104 wherein the second coil generates a second force that is directed at an angle having an absolute value that is greater than zero degrees and less than approximately 45 degrees relative to the longitudinal axis.

106. (New) The disk drive of claim 105 wherein the sum of the first force and the second force equals the net force of the conductor assembly.

107. (New) The disk drive of claim 106 wherein the net force is substantially equal to and directionally opposite the resultant force.

108. (New) The disk drive of claim 105 wherein the first force is directed at an angle having an absolute value that is greater than one degree and less than approximately 30 degrees relative to the longitudinal axis of the actuator assembly, and the second force is directed at an angle having an absolute value that is greater

than one degree and less than approximately 30 degrees relative to the longitudinal axis of the actuator assembly.

109. (New) The disk drive of claim 104 wherein the first coil and the second coil are substantially symmetrical relative to the longitudinal axis of the actuator assembly.

110. (New) The disk drive of claim 104 further comprising a control system that independently directs electrical current to each of the coils.

111. (New) The disk drive of claim 104 wherein the first coil and the second coil are substantially coplanar.

112. (New) The disk drive of claim 104 wherein the net force has a magnitude that is substantially equal to and directionally opposite the resultant force.

113. (New) A method for positioning a data transducer in a disk drive, the method comprising the steps of:

supporting the data transducer with an actuator assembly having a rotatable actuator hub and a longitudinal axis, the actuator hub being subjected to a resultant force caused at least partially by a lack of complete rigidity of portions of the disk drive, the resultant force urging the data transducer in an off-track direction;

positioning the actuator assembly by rotating the actuator hub with a positioner that includes (i) a magnet assembly that generates a magnetic field, and (ii) a conductor assembly that cooperates with the magnet assembly;

generating a first force with a first coil of the conductor assembly, the first force being directed at an angle having an absolute value that is greater than zero degrees and less than approximately 45 degrees relative to the longitudinal axis; and

generating a net force with the positioner, the net force being in a

direction that is substantially opposite the resultant force.

114. (New) The method of claim 113 further comprising the step of generating a second force with a spaced apart second coil of the conductor assembly, the second force being directed at an angle having an absolute value that is greater than zero degrees and less than approximately 45 degrees relative to the longitudinal axis.

115. (New) The method of claim 114 wherein the sum of the first force and the second force equals the net force of the conductor assembly.

116. (New) The method of claim 114 wherein the net force is substantially equal to and directionally opposite the resultant force.

117. (New) The method of claim 114 wherein the first force is directed at an angle having an absolute value that is greater than one degree and less than approximately 30 degrees relative to the longitudinal axis of the actuator assembly, and the second force is directed at an angle having an absolute value that is greater than one degree and less than approximately 30 degrees relative to the longitudinal axis of the actuator assembly.

118. (New) The method of claim 114 wherein the step of positioning the actuator assembly includes positioning the coils so that the first coil and the second coil are substantially symmetrical relative to the longitudinal axis of the actuator assembly.

119. (New) The method of claim 114 further comprising the step of independently directing electrical current to each of the coils with a control system.

120. (New) The method of claim 113 wherein the net force has a magnitude that is substantially equal to and directionally opposite the resultant force.